

Serial No.: 10/773,603
Inventor(s): Wenstrup et al.

U.S. PTO Customer No. 25280
Case No.: 5748

REMARKS

The Pending Claims

Claims 2 and 8 have been amended, thus claims 1-14 are currently pending.

Summary of the Office Action

The Office Action dated January 20, 2006, included the following rejections, objections, and comments:

1. Affirmation of the election to prosecute the invention of Group I must be made.
2. Claims 1-14 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite.
3. Claims 1-14 were rejected under 35 U.S.C. 103(a) as being unpatentable over US Application 2003/0100239 (Gaffney et al.) in view of US Patent 5,856,243 (Geirhos et al.)

In response to these rejections, objections, and comments, and in view of the above Amendments, Applicant provides the following Remarks:

Interview Summary

Applicants thank the Examiner for the interview on April 19, 2006 discussing the present application and references cited.

1. Affirmation of Election

Applicants affirm the election of the prosecution of the invention of Group I, without traverse.

2. Rejection of Claims 1-14 under 35 U.S.C. 112

Claims 1-14 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. The Office Action states that it is unclear what the spatial relationship of the "entanglement zone" located on the core layer is. Claims 2 and 8 have been amended to clearly define the location of the entanglement zone. Justification for this amendment may be found, for example, in paragraph [0010] of the application.

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3. Rejection of Claims 1-14 as unpatentable over US Application 2003/0100239 (Gaffney et al.) in view of US Patent 5,856,243 (Geirhos et al.).

The Office Action states that the matrix acts as a core layer and the carbon-carbon composite acts as the outer layers. Applicants respectfully disagree with this statement. The matrix is formed from a reinforcing fiber and a thermoplastic fiber and then the fibers are carbonized (at temperatures from about 600C to 3000C) to yield the carbon-matrix composite. The fibers are carbonized yielding one layer of carbonized reinforcing and carbonized thermoplastic fibers, not a core and outer layers as the Office Action suggests.

Additionally, claims 6 and 13 have the recitation of the core fibers comprising hollow-fill fibers. The Office Action states that the thermoplastic fibers may be melt-spun filaments containing a minimal amount of voids, which as also known as hollow filament fibers. The referenced paragraph (Para 0049) of Gaffney et al. describes carbonizing thermoset fibers, not thermoplastic fibers and the voids and internal stresses created do not necessarily create hollow structured fibers.

The Office Action states that it would have been obvious to one having ordinary skill in the art at the time the invention was made to use a blend of thermoplastic and lower melting thermoplastic fibers in the invention of Gaffney et al., motivated by Geirhos et al. to make the inner core layer more flexible. Applicants respectfully disagree with this conclusion. Gaffney et al. never teaches that there is a need for flexibility and, in fact, states that the rigidity of the composite fabric is not critical (para 0080).

Geirhos et al. describes a one or more layers of load bearing fibers and melt-bondable fibers. There is no motivation in Geirhos et al. to sandwich his layer with two layers of a carbon-matrix compound of Gaffney et al. There is no teaching, or suggestion in either of the references, taken alone or together, to take a layer of Geirhos et al. and surround it by two layers of Gaffney et al. Further, neither of the references, taken alone or together, make obvious that when combining the 3 layers, the core layer has an entanglement zone adjacent to the shell layers where the shell fibers and the core fibers are entangled. Gaffney et al. and Geirhos et al. do not suggest or make obvious, partially oxidized PAN fibers or a shell composition of partially

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oxidized PAN staple fibers, thermoplastic staple fibers, and lower melting thermoplastic staple fibers as recited in Claim 7.

Different combinations of reinforcing fibers and thermoplastic fibers are suggested in Gaffney et al., but there is no teaching or suggestion that there is a need to have a separate layer of primarily thermoplastic fibers, with one of the fibers having a lower melting point than the other. Additionally, there is no teaching, suggestion, or motive in Geirhos et al. to use infusible reinforcing fibers of Gaffney et al. mixed with thermoplastic fibers adhered in a separate layer.

The only teaching, suggestion, or motive for such modifications comes from the Applicant's own disclosure. Only by hindsight use of the present invention is this combination suggested. It is impermissible to use the claimed invention as an instruction manual or template to piece together the teachings of the prior art so that the claimed invention is rendered obvious. *In re Fritch*, 972 F.2d 1260, 23 USPQ2d 1780, 1783-84 (Fed. Cir. 1992). For these reasons, the Applicants respectfully submit that the claimed invention is not obvious over Gaffney et al. in view of Geirhos et al.

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Conclusion

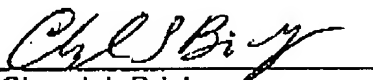
In view of the forgoing amendments and remarks, the Examiner is respectfully requested to withdraw the outstanding rejection and to pass the subject application to allowance. In the event that the Examiner believes that the claims would be allowable with minor changes, the Examiner is invited to telephone the undersigned to discuss an Examiner's Amendment.

Fee Authorization: In the event that there are additional fees associated with the submission of these papers, Applicant hereby authorizes the Commissioner to withdraw those fees from our Deposit Account No. 04-0500.

Extension of Time: In the event that additional time is required to have the papers submitted herewith for the above referenced application to be considered timely, Applicant hereby petitions for any additional time required to make these papers timely and authorization is hereby granted to withdraw any additional fees necessary for this additional time from our Deposit Account No. 04-0500.

May 12, 2006
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Respectfully submitted,


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